FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6160
FACILITY NAME MILLERSYLVANIA STATE PARK

8/21/2003

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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6160 . The Department of Ecology (Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law [Revised Code of Washington (RCW) 90.48.080 and 90.48.162] requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits [Chapter 173-216 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Southwest Regional Office of the Washington State Department of Health and by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Washington State Parks and Recreation Commission
Facility Name and Address	Millersylvania State Park 11834 Tilley Road South, Olympia, WA 98512-9167
Type of Treatment System	Subsurface and Freewater Flow Wetlands with Infiltration Basins
Discharge Location	Latitude: 122º 54' 08" N Longitude: 46º 54' 15" W
Legal Description of Application Area	SW ¼, SW ¼, Section 35, Township17 N, Range2W, WM 1200 ft. north, 600 ft. east of park entrance
Contact at Facility	Ole Spaulding, Operator and Park Maintenance (360) 753-1519
Responsible Official	Dale Broyles Construction and Maintenance Superintendent 7150 Cleanwater Lane, Olympia, WA, 98504-2650 (360) 902-8543 FAX (360) 902-5875

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM

HISTORY

The Millersylvania State Park was constructed in the 1930s by the Civilian Conservation Corps. The original sewage system was comprised of 17 separate on-site septic systems. In 1996 a wetland treatment system was completed that re-routed the effluent from most of the on-site septic systems to the new system. The new system has not been without problems. The new system has never met the final limits imposed under the old permit, which the original consultant for the Permittee said could be met by the system. Both BOD and nitrogen have continued to be a problem.

COLLECTION SYSTEM STATUS

Major portions of the collection system were replaced in 1996 when the sewage was rerouted to the new wetland system. The collection system does not appear to have been reexamined since that time. An inflow infiltration examination will be required in the permit. The connections of roof and foundation drains to the sewage system are prohibited and will be noted in the permit.

The treatment system has septic tanks for primary treatment at each toilet/comfort station in the park followed by a pump station to transfer the waste water to the wetland system. The collection system consists of nine septic tanks with pump chambers on major pump stations and three force mains. The force mains consist of approximately 4,320 LF of 4-inch and 2,300 LF of 6-inch PVC pipe. The collection system serves two bathhouses, six comfort stations, one R.V. dump station, and two ranger residences. The discharge pipe from the septic tanks are equipped with filters to further reduce solids from being transported to the wetlands. One area not included in the collection system is the Environmental Learning Center (ELO) at the west end of Deep Lake. The septic system the ELO was replaced in 1995.

The system also has a trailer/RV dump station, however, the Permittee was ordered on October 19, 2001, to prohibit the use of the dump station to reduce the load to the system and improve the effluent levels. The order was amended on November 15, 2001. The new permit will continue to keep the RV dump station disconnected, unless extensive improvements are made to the system that would allow the liquid for the RV dump station to be treated properly. The nature of the RV and trailer waste is that it often contains chemicals such as formaldehyde which requires more aeration and process time. Solids cannot be allowed in the system because they will clog the wetland filtration.

TREATMENT PROCESSES

The sewage treatment and flow begins at individual septic tanks at each of the restrooms and residences in the park. The wastewater is then pumped to the wetland system which consists of four main cells or two sets of two cells running in parallel. There are two types of wetland cell: first a pair of Subsurface Flow cells (SSF). The wastewater then flows into a pair of Free Water Surface (FWS) cells.

At the beginning of the wetlands, a splitter sends the wastewater to a header that distributes the flow to each of the SSF basins. The SSF basins are each 3,720 feet^2 and approximately 2.0 feet deep. One of the basins was filled with crushed rock and the other with ground recycled glass as an experiment to see which media would do a better job. Consultants for the park (White Shield Inc., 2002) recommend replacing the media in the crushed rock basin with ground glass and changing the water levels. These cells have predominantly cattails growing in them with a mix of bull rush and invasive weeds.

The flow from the SSF basins is distributed to the FWS basin through another set of headers. The FWS basins are each 13,250 feet^2, approximately 1.5 feet deep, and are filled with cattails and bull rushes.

The vegetation in the wetlands has never been harvested or managed. The vegetation has never been harvested, there are weed species in the wetland, and nitrogen cycles through the wetland annually. Nitrogen peaks every summer (see graph of Millersylvania Effluent Nitrogen in Appendix C). It also appears that nitrogen has been a problem since the beginning of the facility operation. The graph shows Total Kjeldahl Nitrogen (TKN) and ammonia going as high as 40 mg/L since the first full season. Because ammonia parallels the TKN values, it is apparent that nitrification/de-nitrification is not taking place which would remove the ammonia. Instead, nearly all the nitrogen enters the ground at the discharge points.

The wastewater leaves the FWS basins and enters a flume where flow is monitored and then enters infiltration basins. Four monitoring wells are arrayed around the northern end of the infiltration basins.

The treatment system is classified as a Class 1 facility and therefore requires an operator to be certified with a Group 1 license. One Park employee has a Group 1 operators license. There are no industrial or commercial connections to the system and none expected in the future because the facility serves a park.

RESIDUAL SOLIDS

Most of the solids are collected in the individual septic tanks which are regularly pumped and hauled to a biosolids recycler in Chehalis. The wetlands remove some additional solids, however, the biosolids that settle in the wetlands have never been removed in the last six years of operation. Any removal of the biosolids from the wetlands will require coverage under the statewide biosolids permit.

GROUND WATER

The Millersylvania State Park and Deep Lake are predominantly natural wetlands. The area where the constructed wetland treatment system is located, however, is on higher ground than the surrounding natural wetlands.

The "Geologic Map of the Centralia Quadrangle, Washington," study compiled by Henry Schasse, (Open file Report 87-11, revised November 1987) indicates recessional and proglacial Vashon outwash gravel underlying the project site. The soil unit is described as stratified pebble, cobble, and boulder gravel deposited in meltwater streams and their deltas. The boring logs for the monitoring wells show sandy loam and sandy loam gravel to approximately 20 feet and packed gravel and course sand. This type of substrate usually has a high permeability and a low capacity for filtering contaminants as noted in the "Soil Survey of Thurston County." Because there is little treatment in the soil, it is imperative that treatment take place in the system.

PERMIT STATUS

The previous and first permit for this facility was issued on November 26, 1996, and modified on May 12, 1997. The modification included nitrite-nitrogen (NO^2-N). Ammonia and total phosphorus were removed as monitoring parameters at that time.

An Administrative Order was issued October 19, 2001, and amended on February 6, 2002. This Order required an application be resubmitted, the repair or reinstallation of a continuous flow meter, discontinue use of non-accredited laboratories, and discontinue use of the RV/Trailer dump.

The application for permit renewal was submitted and rejected twice before being accepted on February 20, 2002.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on June 6, 2000, for the main purpose of writing the permit.

During the history of the previous permit, the Permittee has not remained in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department. The original permit had interim BOD and TSS limits of 30 mg/L monthly and 45 mg/L weekly. Final limits were to begin on December 1, 1998. The final limits for BOD and TSS were 5.0 mg/L monthly and 7.5 mg/L weekly and a total nitrogen limit of 6.5 mg/L. The facility has clearly had a difficulty in meeting total nitrogen limits. Compare the design criteria below with table 1: Wasterwater Characterization.

WASTEWATER CHARACTERIZATION

The Original application (1996) prior to operation of the facility reported the design concentration that the facility could achieve. These engineering design criteria were for the month of July as follows:

Design criteria from 1996 application:

Parameter	Concentration
TSS	5.0 mg/L
BOD_5	5.0 mg/L
TKN	5.5 mg/L
Ammonia-N	4.2 mg/L
Nitrate	0.9 mg/L
Total-N	6.5 mg/L
Total-P	4.0 mg/L
Fecal Coliform	184 org./100 ml

However, the facility has not met all of these design parameters some of which were incorporated into some of the final limits in the 1996 permit.

The concentration of pollutants in the discharge over the last several years was reported in the discharge monitoring reports. The proposed wastewater discharge prior to infiltration or land application is characterized for the following parameters:

Table 1: Wastewater Characterization (August 1999 to August 2002 except as noted)

Parameter	Permit Limit	Plant Characterization
Flow	24,900 gpd	5891 gpd average* 9354.55 gpd 95th percentile 28,728 gpd (exceedance of standards noted in October 2002.)
pH	6.5 to 8.5 Standard Units	6.4 to 7.4 S.U. (5th and 95th percentile)
BOD_5 Interim limits lasting until November 30, 1998	30 mg/L monthly 45 mg/L weekly	Not characterized before Aug '99, see next row for BOD final limits
BOD_5 Final limits beginning December 1, 1998	5 mg/L monthly	17 mg/L (95th percentile of monthly averages) 7 mg/L (average of monthly averages) (Based on Aug 99-Aug 02 data)
	7.5 mg/L weekly	20 mg/L (95th percentile of weekly averages) 8.5 mg/L (average of weekly averages) (Based on Aug 99-Aug 02 data)
TSS Interim limits lasting until November 30, 1998	30 mg/L monthly 45 mg/L weekly	Not characterized before Aug '99
TSS Final limits beginning December 1, 1998	5 mg/L monthly	33 mg/L (95th percentile of monthly averages) 11 mg/L (average of monthly averages) (Based on Aug 99-Aug 02 data)
	7.5 mg/L weekly	43 mg/L (95th percentile of weekly averages) 14 mg/L (average of weekly averages)
Total Nitrogen final limit beginning December 1, 1998	6.5 mg/L monthly	85 mg/L TKN (95th percentile of monthly averages) 42 mg/L TKN (average of monthly averages) (Total nitrogen is $TKN+NO_3+NO_2$, therefore the actual total nitrogen would be higher than the TKN values shown above.)
Ammonia	Only limited as part of total nitrogen above	82 mg/L (95th percentile of monthly averages)

*The flow measurements may not be accurate because the flow meter was out of service for much of the time and measurements were estimated once a day. The period of record examined was August 1999 to August 2002

Table 1 looks at the DMRs for the last couple of years. The data before 1999 appeared very similar. TKN and Ammonia was analyzed and shown in Appendix C and almost identical peaking in TKN values from year to year.

The measurement of flow has been a continual problem. The permit required continuous monitoring. When the facility was inspected in June of 2000 it was found that the ultrasonic flow meter was out of service and had been for some time. Flow measurements were taken once per day by visually measuring flow in a Parshall flume to the nearest inch and then estimating flow from a table. This method made it very difficult to determine average flow for each day and impossible to know total flow so as to be able to determine actual nitrogen or BOD loading. For the purposes of writing this permit, it was assumed that the flow was continuous during each day monitored.

The old permit had interim and final limits for BOD and TSS with the final limits to be adopted in November 1998. The final limits added total nitrogen. These final limits were based on the consultant's claim that the wetland system would be able to treat and remove the BOD, TSS and nitrogen. However, Table 1 shows the facility was able to meet the interim limit of 30 mg/L BOD but not 5 mg/L under the final limits. The facility was able to meet 17 mg/L BOD 95 percent of the time. TSS had the same final limit of 5 mg/L and was only able to meet a 33 mg/L TSS 95 percent of the time. This is above the secondary limit of 30 mg/L. The nature of TSS in a wetland is that much of the original TSS may settle, but growth of algae and duck weed or wind stirring of sediments further downstream can trigger a higher TSS value.

The final limit for total nitrogen was 6.5 mg/L, however, the amount of nitrogen released by the facility is 10 to 13 times this amount. The TKN had a 95^{th} percentile value of 85 mg/L and averaged 42 mg/L. Total nitrogen is TKN + nitrate (NO_3) + nitrite (NO_2). The NO_3 and NO_2 were often below detection and rarely exceeded 1 mg/L, therefore, the average total nitrogen value is within 1 mg/L of the TKN value shown above. The low NO_3 and NO_2 values indicate that the wetlands are converting very little nitrogen through biological oxidation in a process called nitrification/de-nitrification. This process allows nitrogen to be converted to a gaseous state and removed from the wastewater. Most of the nitrogen in the wastewater is transported to the groundwater. However, very little nitrogen was detected in the groundwater and it is assumed that most of the nitrogen was treated in the soils and diluted before reaching the monitoring wells.

Over the last five years there were 306 noted permit violations that included:

Violations noted for the wetland system

- BOD 50
- TSS 56
- Flow 2
- Water elevation in ponds 15

Violations noted for the monitoring wells

- TKN 19
- NO3 16
- NO2 8

- chloride 21
- fecal coliform 15
- Conductivity 15
- Iron 9
- Total Nitrogen 19
- Dissolved Oxygen 10
- pH 15
- Total dissolved solids 10
- Sulfate 10
- Temperature 15
- Water elevation in wells 10

Other problems with permit requirements include failure to report at several times throughout the last several years. Records have been poorly kept. Well numbers have regularly been mixed up, although attempts have been made to straighten out the data from the wells.

Because the facility has never met the lower final limits for BOD and TSS, the facility may be eligible for a higher limit based on performance. A technology based limit for BOD and TSS of 30 mg/L monthly and 45 mg/L weekly may be the most appropriate for the facility. BOD and TSS at these levels should not pose a problem to ground water quality. As shown in Table 1 the facility should be able to meet the 30 mg/L /45 mg/L limits for BOD and TSS. A nitrate limit of 6.5 mg/L (as a groundwater limit) is necessary to protect groundwater. With the operational changes the Permittee is making to the wetland system, they should be able to meet the technology based limits as well as the nitrate limit in groundwater.

SEPA COMPLIANCE

There are no State Environmental Policy Act (SEPA) compliance issues at this time.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The minimum requirements to demonstrate compliance with the AKART standard are derived from the *Water Reclamation and Reuse Standards*, the *Design Criteria for Municipal Wastewater Land Treatment*, and Chapter 173-221 WAC.

The permit also includes limitations on the quantity and quality of the wastewater applied to the infiltration basin that have been determined to protect the quality of the ground water. The approved engineering report includes specific design criteria for this facility. However, it is clear that the facility cannot meet the original design limit as demonstrated in Table 1 above. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC).

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

Table 2: Technology-Based Effluent Limits

Parameter	Monthly Average	Weekly Average
BOD_5	30 mg/L monthly, 6.2 lbs/day	45 mg/L weekly, 9.4 lbs/day
TSS	30 mg/L monthly, 6.2 lbs/day	45 mg/L weekly, 9.4 lbs/day
Fecal Coliform	200 col./100 ml	400 col./100 ml
Total nitrogen	6.5 mg/L	n/a
pH	Shall not be outside the range of 6.5 to 8.5	

The total BOD and TSS monthly effluent loadings (lbs/day) were calculated as the maximum monthly design flow (0.0249 mgd) x concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 6.2 lbs/day. The weekly mass loading limit is calculated as 1.5 x monthly loading 9.4 lbs/day.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 3: Ground Water Quality Criteria and Limits

Parameter	Background Water Quality	Ground Water Quality Criteria	Enforcement Limit	Explanation
pH	5.6 – 7.1	6.5 – 8.5	5.6 -8.5	bwq/criteria
Total Dissolved Solids	59.2 mg/L	500 mg/L		
Fecal Coliform	1 cfu/100 ml	--	1 cfu/100ml	bwq
Total Nitrogen	3.2 mg/L	--	6.5 mg/L	AKART
TKN	1.4 mg/L	--	6.5 mg/L	AKART
Nitrite	0	--	--	--
Nitrate	2.9 mg/L	10 mg/L	6.5 mg/L	AKART
Chloride	2.5 mg/L	250 mg/L		
Manganese	0.4 mg/L	0.05 mg/L	0.4 mg/L	bwq
Iron	9.6 mg/L	0.3 mg/L	9.6 mg/L	bwq

(bwq = background water quality)

The Department has reviewed existing records and has determined background conditions for many of the parameters as shown in Table 3. In most cases the background water quality value was used when available. In other cases, the AKART design was used as limits. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses.

COMPARISON OF EFFLUENT LIMITATIONS WITH THE EXISTING PERMIT ISSUED NOVEMBER, 1996

Table 4: Comparison of Previous and New Effluent Limits
(The existing limits shown were to become final on December 1, 1998)

Parameter	Existing Final Limits	Proposed Limits
Flow	24,900 gpd	24,900
BOD	5.0 mg/L monthly[a], 7.5 mg/L weekly[b] (never achieved)	30 mg/L, 6.5 lbs/day monthly[a], 45 mg/L, 9.4 lbs/day weekly[b]
TSS	5.0 mg/L monthly[a], 7.5 mg/L weekly[b] (never achieved)	30 mg/L, 6.5 lbs/day monthly[a], 45 mg/L, 9.4 lbs/day weekly[b]
Fecal coliform	No limits	(See groundwater limits below)
pH	Shall not be outside the range of 6.5 to 8.5	Shall not be outside the range of 6.5 to 8.5
Total Nitrogen[c]	6.5 mg/L (effluent limit)	(See groundwater limits below)
[a] The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.		
[b] The average weekly effluent limitation is defined as the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.		
[c] Sum of organic nitrogen, ammonia, nitrite, and nitrate.		

A separate table of groundwater limits were added to the proposed permit with a point of compliance being the down gradient wells as follows:

Table 5: Groundwater Limits

Parameter	Ground Water Enforcement Limit
pH	5.6 – 8.5
Fecal Coliform	1 cfu/100 ml
Total Nitrogen	6.5 mg/L
TKN	6.5 mg/L
Nitrate	6.5 mg/L
Manganese	0.4 mg/L
Iron	9.6 mg/L

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore, the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

FACILITY LOADING

The original design and loading rates have not resulted in meeting effluent limits. A recent study conducted by White Shield Inc., October 2002 for Parks modeled flow and nitrogen removal rates. The analysis predicted that an increase of 10 percent in flow in 1999 would just meet the nitrogen limits in July (the worst month). This is providing that the facility is properly operated and maintained, which it has not been to this date. The flow during July 1999 was 6,292 gpd and a 10 percent increase would be 6,842 gpd. It is not clear what flow this would translate to during times of high flow. It should also be noted that the facility has never performed to the original specifications and there is no guaranty that the facilities nitrogen removal rate will improve if the recommendations of the White Shield study are followed.

The original design criteria for this treatment facility are taken from the July 18, 1995, engineering report prepared by the Washington State Parks and Recreation Commission and are as follows:

Monthly average flow (max. month):	24,900 gpd
Monthly average flow (min. month):	1,400 gpd
BOD influent loading:	31.0 lbs/day
TSS influent loading:	20.0 lbs/day

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant [WAC 173-216-110(4)]. The Permittee is required to submit an engineering report when the plant reaches 85 percent of its flow or loading capacity. For significant new discharges, the permit requires a new application and an engineering report [WAC 173-216-110(5)]. The Park is not slated to expand, therefore, the permit will not require an engineering submittal for plant expansion at this time.

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in permit condition S6. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the local health district.

As noted above, the facility pumps out their septic tanks and hauls the biosolids to Lewis County. The biosolids accumulated in the wetland have not been removed, but will be removed under a plan by Parks. The Permittee will need a biosolids plan before they remove the solids in the wetlands. Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will by used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore, notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system. No industrial or commercial discharges are expected or allowed within this system.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the

beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

White Shield Inc., 2002. Constructed Wetland Wastewater Treatment Plant System Performance Study. Washington State Parks & Recreation Commission, Millersylvania State Park.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 14, 2002, and July 21, 2002, in the *Daily Olympian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on June 26, 2003, in the *Daily Olympian* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone (360) 407-6554, or by writing to the address listed above.

This permit was written by Eric Schlorff.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

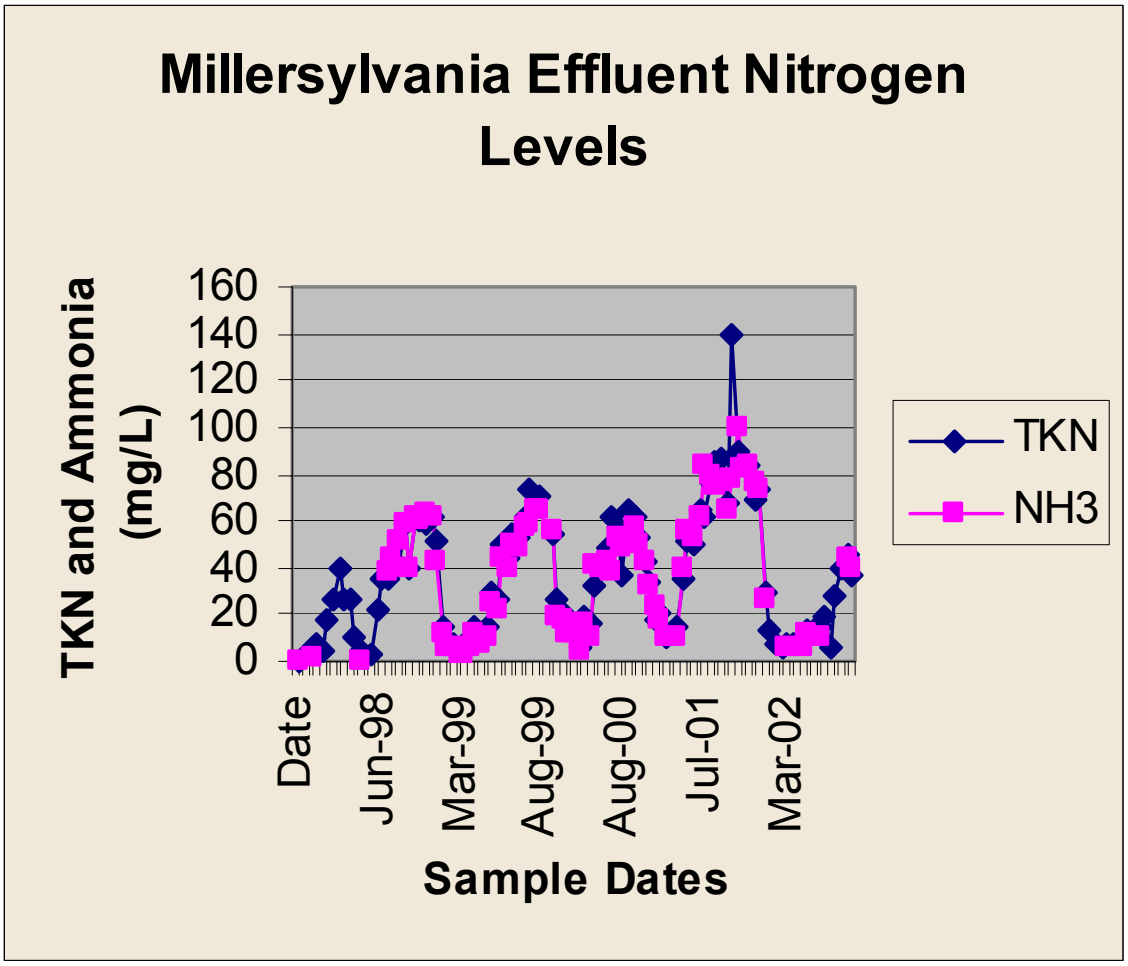
Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

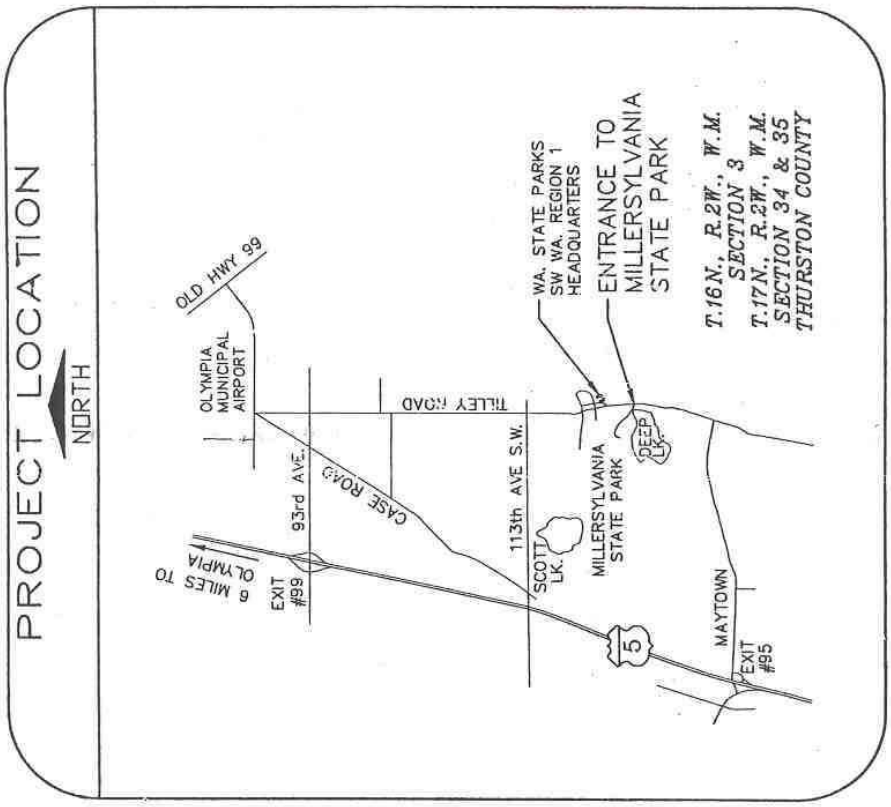
Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

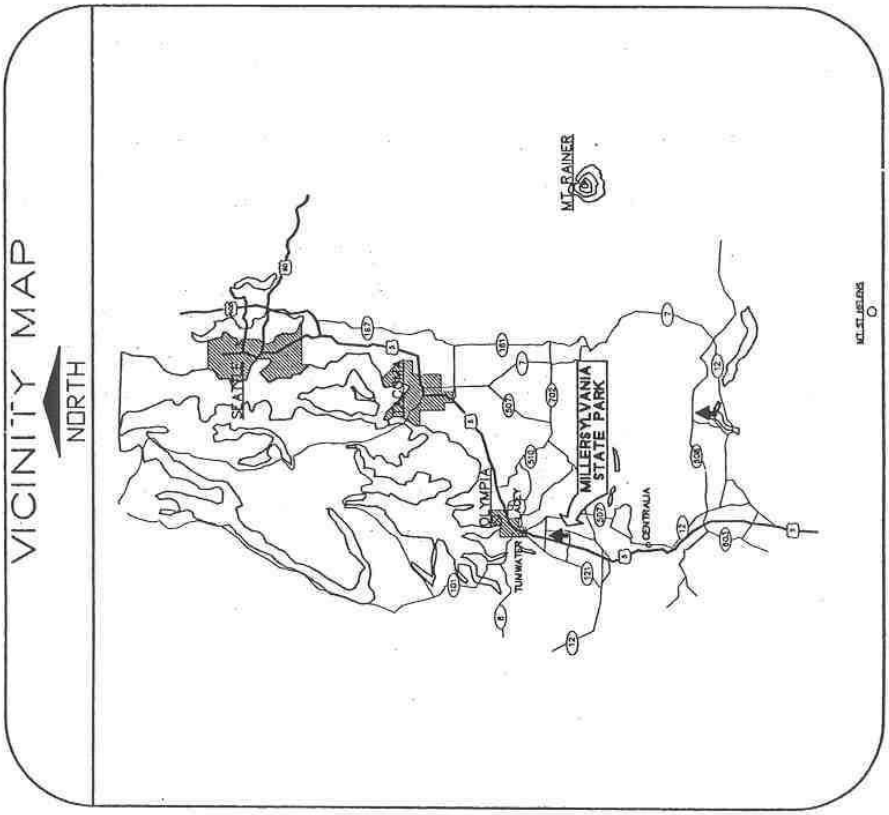
Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

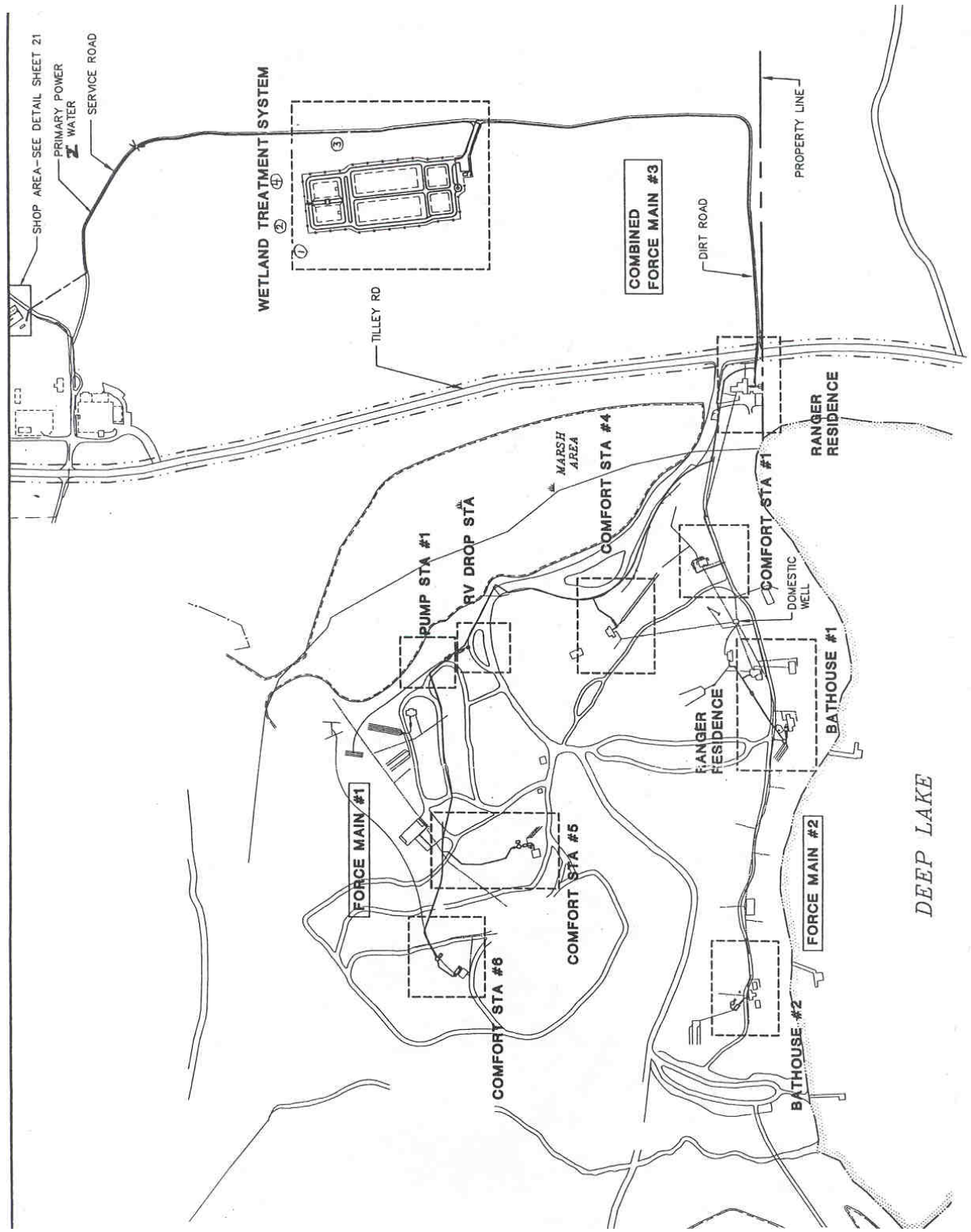
Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

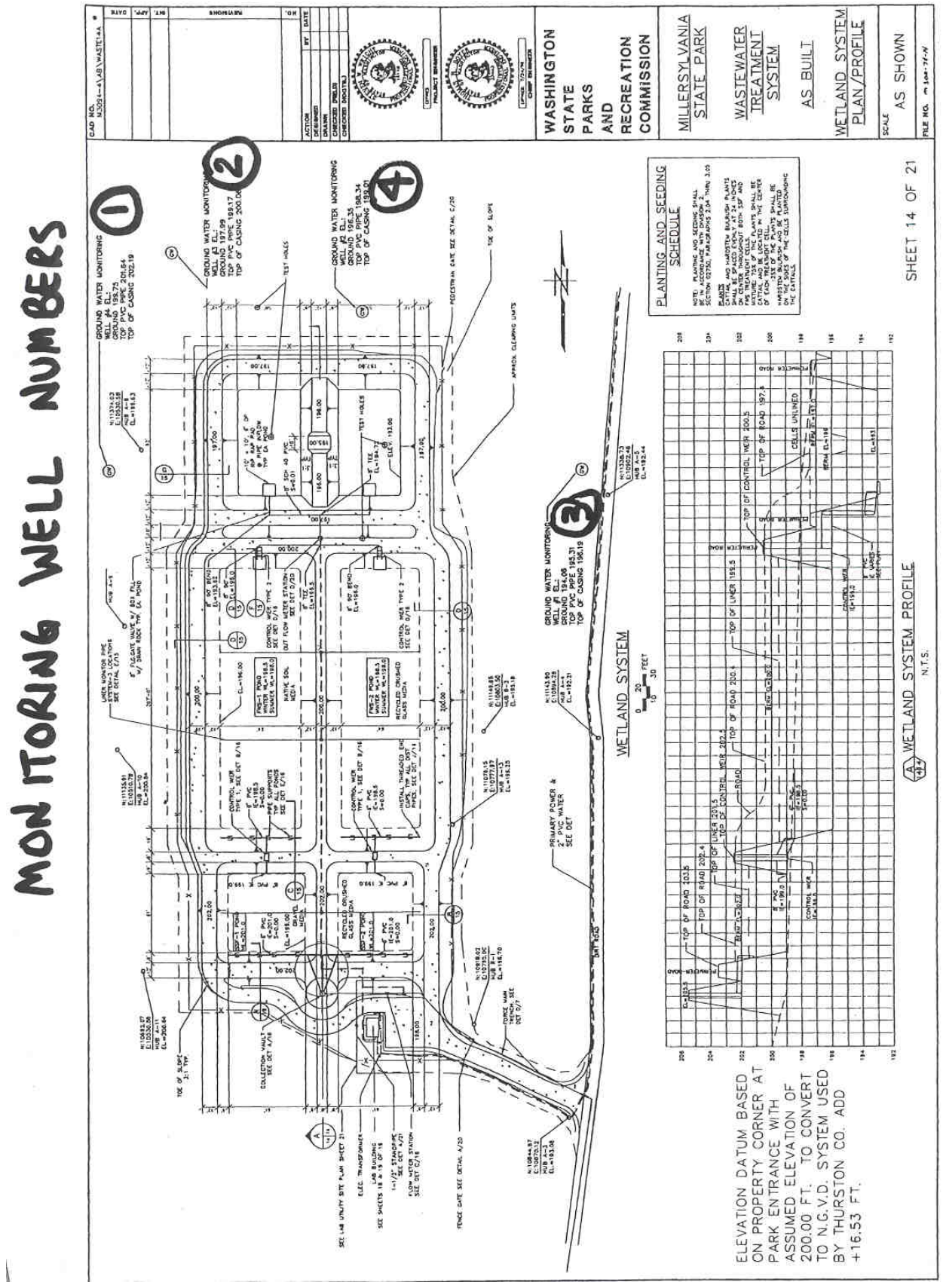
APPENDIX C--TECHNICAL CALCULATIONS




PROJECT LOCATION
NORTH
OLD HWY 99
OLYMPIA MUNICIPAL AIRPORT
TILLEY ROAD
CASE ROAD
93rd AVE.
113th AVE S.W.
WA. STATE PARKS SW WA. REGION 1 HEADQUARTERS
ENTRANCE TO MILLERSYLVANIA STATE PARK
DEEP LK.
MILLERSYLVANIA STATE PARK
SCOTT LK.
EXIT #99
6 MILES TO OLYMPIA
MAYTOWN
EXIT #85
5
T.16N., R.2W., W.M.
SECTION 3
T.17N., R.2W., W.M.
SECTION 34 & 35
THURSTON COUNTY


VICINITY MAP
NORTH
MT. RAINER
SEATTLE
OLYMPIA
TUMWATER
MILLERSYLVANIA STATE PARK
CENTRALIA


SHOP AREA-SEE DETAIL SHEET 21
PRIMARY POWER
WATER
SERVICE ROAD
WETLAND TREATMENT SYSTEM
TILLEY RD
COMBINED FORCE MAIN #3
DIRT ROAD
PROPERTY LINE
RANGER RESIDENCE
COMFORT STA #1
COMFORT STA #4
MARSH AREA
RV DROP STA
PUMP STA #1
DOMESTIC WELL
BATHOUSE #1
RANGER RESIDENCE
FORCE MAIN #1
COMFORT STA #5
COMFORT STA #6
FORCE MAIN #2
BATHOUSE #2
DEEP LAKE


MONITORING WELL NUMBERS
WASHINGTON STATE PARKS AND RECREATION COMMISSION
MILLERSYLVANIA STATE PARK
WASTEWATER TREATMENT SYSTEM
AS BUILT
WETLAND SYSTEM PLAN/PROFILE
AS SHOWN
SHEET 14 OF 21
PLANTING AND SEEDING SCHEDULE
WETLAND SYSTEM
WETLAND SYSTEM PROFILE
N.T.S.
ELEVATION DATUM BASED ON PROPERTY CORNER AT PARK ENTRANCE WITH ASSUMED ELEVATION OF 200.00 FT. TO CONVERT TO N.G.V.D. SYSTEM USED BY THURSTON CO. ADD +16.53 FT.

APPENDIX D--RESPONSE TO COMMENTS